APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,968	09/11/2003	David M. Haaland	6969.2/103411	8987

			EXAMINER
20567 7590 06/30/2004			LE, JOHN H

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ART UNIT	PAPER NUMBER
2863	

DATE MAILED: 06/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/661,968	HAALAND ET AL.
	Examiner	Art Unit
	John H Le	2863

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 June 2004*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
      closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *25-86* is/are pending in the application.

      4a) Of the above claim(s) *25-38* is/are withdrawn from consideration.

5)☒ Claim(s) *39-86* is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

      Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

      Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

      a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
           application from the International Bureau (PCT Rule 17.2(a)).

      * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)   4)☐ Interview Summary (PTO-413)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)   Paper No(s)/Mail Date. _____ .
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)   5)☐ Notice of Informal Patent Application (PTO-152)
      Paper No(s)/Mail Date _____ .   6)☐ Other: _____ .

Respons to Restriction

1.   Applicant's response filed 06/07/2004 has been entered and carefully

considered.

2.   Applicant's election with traverse of Group III (Claims 39-50, 75-86) in

Paper mail on 06/07/2004 is acknowledged. The traversal is on the ground(s)

that:

-The claims of group III, IV, and V are the same group and claim 39c)

starts by guessing pure-component spectra K and 75c) starts by guessing a set

of component values C. How the steps of claims 39 and 75 evolve thereafter

depends on these initial guesses, analogous to the evolution of claims 51 and 63.

After review, the Examiner agrees with attorney that groups III, IV, and V

are in the same group. Therefore group III includes claims 39-86.

- The inventions as claimed are not directed to separate subclasses, as

asserted by the Office, but can each be used for all of the subclasses of chemical

analysis in class 702, subclass 22. Indeed, all of these methods are applicable to

the analysis of a wide variety of multivariate spectral data.

This is not found persuasive because inventions of group I and group II

have different functions, inventions of group II and group III have different

functions, and invention of group I does not required step b) decomposing the

spectral error covariance E_A according to $E_A = TP + E$, where T is a set of n x p

loading vectors obtained from factor analysis of the spectral error covariance E_A,

and E is a set of n x p random errors and spectral variations not useful for

prediction of group III and invention of group III does not required step iv)

obtaining component residuals Ec according to Ec= C − C of group I.

The requirement is still deemed proper and is therefore made FINAL.

Claims 25-38 withdrawn from further consideration pursuant to 37 CFR

1.142(b), as being drawn to a non-elected invention, there being no allowable

generic or linking claim. Applicant timely traversed the restriction (election)

requirement in Paper mailed 06/07/2004.

3.   This application contains claims 25-38 are drawn to an invention

nonelected with traverse in the reply filed on 06/07/2004. A complete reply to the

final rejection must include cancelation of nonelected claims or other appropriate

action (37 CFR 1.144) See MPEP § 821.01.

Allowable Subject Matter

4.   Claims 39-86 are allowed.

The following is a statement of reasons for the indication of allowable

subject matter:

In combination with other limitations of the claims, the cited prior arts fail to

teach steps of decomposing the spectral error covariance E_A according to E_A =

TP + E, where T is a set of n x r scores and P is a set of r x p loading vectors

obtained from factor analysis of the spectral error covariance E_A, and E is a set of

n x p random errors and spectral variations not useful for prediction; guessing

pure-component spectra K for the set of multivariate spectral data A; testing for

convergence according to $||A-CK||^2$, as recited in claims 39, 51, 63, and 75.

U.S. Patent No. 6,415,233 discloses a method for performing an improved

classical least squares multivariate estimation of the quantity of at least one

constituent of a sample comprising first utilizing a previously constructed

calibration data set expressed as matrix $^\wedge K$ representing the combination of

vectors expressing the spectral shapes and concentrations of the measured pure

sample constituents of the calibration data set, measuring the response of the

sample that contains the constituents in the calibration data set as well as

additional constituents and additional system effects not present in the calibration

data set to form a prediction data set, adding at least one vector expressing the

spectral shape (but not concentration) of at least one additional constituent or

additional system effect not present in the calibration data set but present in the

prediction data set to form an augmented matrix $^\sim K$, and estimating the quantity

of at least one of the constituents in the calibration data set that is present in the

sample by utilizing the augmented matrix $^\sim K$. '233 fails to specify steps of

decomposing the spectral error covariance E_A according to $E_A = TP + E$, where T

is a set of $n \times r$ scores and P is a set of $r \times p$ loading vectors obtained from factor

analysis of the spectral error covariance E_A, and E is a set of $n \times p$ random errors

and spectral variations not useful for prediction; guessing pure-component

spectra K for the set of multivariate spectral data A; testing for convergence

according to $||A\text{-}CK||^2$ as now recited in claims 39, 51, 63, and 75 of the present

invention.

U.S. Patent No. 6,341,257 discloses a method for estimating the quantity

of at least one known constituent or property in a sample comprising first forming

a classical least squares calibration model to estimate the responses of individual

pure components of at least one of the constituents or parameters affecting the

optical response of the sample and employing a cross validation of the samples

in the calibration data set, then measuring the response of the mixture to the

stimulus at a plurality of wavelengths to form a prediction data set, then

estimating the quantity of one of the known constituents or parameters affecting

the calibration data set by a classical least squares analysis of the prediction

data set wherein such analysis produces residual errors, and then passing the

residual errors to a partial least squares, principal components regression, or

other inverse algorithm to provide an improved estimate of the quantity of the one

known constituent or parameter affecting the sample. '257 fails to specify steps

of decomposing the spectral error covariance E_A according to $E_A = TP + E$,

where T is a set of $n \times r$ scores and P is a set of $r \times p$ loading vectors obtained

from factor analysis of the spectral error covariance E_A, and E is a set of $n \times p$

random errors and spectral variations not useful for prediction; guessing pure-

component spectra K for the set of multivariate spectral data A; testing for

convergence according to $||A-CK||^2$ as now recited in claims 39, 51, 63, and 75 of

the present invention.

Response to Arguments

5.   Applicant's arguments filed 06/07/2004 have been fully considered but

they are not persuasive.

-Applicant argues that "the inventions as claimed are not directed to

separate subclasses, as asserted by the Office, but can each be used for all of

the subclasses of chemical analysis in class 702, subclass 22. Indeed, all of

these methods are applicable to the analysis of a wide variety of multivariate

spectral data".

This is not found persuasive because inventions of group I and group II

have different functions, inventions of group II and group III have different

functions, and invention of group I does not required step b) decomposing the

spectral error covariance E_A according to $E_A = TP + E$, where T is a set of n x p

loading vectors obtained from factor analysis of the spectral error covariance E_A,

and E is a set of n x p random errors and spectral variations not useful for

prediction of group III and invention of group III does not required step iv)

obtaining component residuals Ec according to Ec= C – C of group I.

The requirement is still deemed proper and is therefore made FINAL.

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action (37 CFR 1.144) See MPEP § 821.01.

Contact Information

6.   Any inquiry concerning this communication or earlier communications from

the examiner should be directed to John H Le whose telephone number is 571-

272-2275. The examiner can normally be reached on 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, John E Barlow can be reached on 571-272-2269. The fax

phone number for the organization where this application or proceeding is

assigned is 703-872-9306.

Information regarding the status of an application may be obtained from

the Patent Application Information Retrieval (PAIR) system. Status information

for published applications may be obtained from either Private PAIR or Public

PAIR. Status information for unpublished applications is available through

Private PAIR only. For more information about the PAIR system, see http://pair-

direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-

free).

John H. Le

Patent Examiner-Group 2863

June 25, 2004
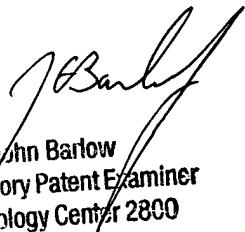
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